

AMENDMENTS TO CLAIMS

. (Original) The combination as claimed in claim 13, wherein

1. (Currently Amended) A combination of a rotor and a supporting structure for the rotor, the combination comprising:

 a base provided with a metal axle tube;

 a holding member securely mounted in the metal axle tube, the holding member including a hole and an inner flange formed on ~~a thin an~~ inner periphery defining the hole, said inner flange having an axial thickness that is thin relative to an axial length of the holding member to minimize contact between said inner flange and a shaft extending through said hole;

 a supporting member securely mounted in the metal axle tube and including as supporting portion;

 a fixing member securely mounted in the metal axle tube and including an opening;

 a rotor having a permanent magnet, ~~and a~~ the shaft being provided at a center thereof, ~~the shaft of the rotor and~~ including an engaging groove, the shaft being extended through ~~the hole of the holding member and~~ the opening of the fixing member with an end face of a distal end of the shaft rotatably resting on the supporting portion of the support member and with the fixing member engaging with the engaging groove of the shaft, whereby the shaft and the thin inner flange of the holding member have a slight contact therebetween; and

 a balance plate mounted to the base and made from magnetically conductive material, the balance plate and the permanent magnet attracting each other to thereby provide an auxiliary balance force for rotation of the shaft on the thin inner flange of the holding member.

2. (Original) The combination as claimed in claim 1, wherein the axle tube includes a hole, and wherein the holding member, the support member, and the fixing member are tightly engaged with an inner periphery defining the hole of the axle tube.

3. (Original) The combination as claimed in claim 1, wherein the axle tube includes a hole, the holding member and the support member being tightly engaged with an inner periphery defining the hole of the axle tube, the fixing member being sandwiched between the holding member and the support member.
4. (Original) The combination as claimed in claim 1, wherein the holding member is a ring directly mounted to an inner periphery of the axle tube.
5. (Original) The combination as claimed in claim 1, wherein the holding member is a ring, the axle tube including an inner periphery having a stepped portion on which the ring rests.
6. (Original) The combination as claimed in claim 1, wherein the axle tube includes an inner periphery having a stepped portion against which the support member abuts.
7. (Original) The combination as claimed in claim 1, wherein the support member includes a closed bottom that forms the supporting portion.
8. (Original) The combination as claimed in claim 1, wherein the supporting portion of the support member includes a hole, further comprising a cover for covering the hole, the end face of the distal end of the shaft rotatably resting on the cover.
9. (Original) The combination as claimed in claim 1, wherein the fixing member includes an annular wall which abuts against the supporting portion of the support member.
10. (Original) The combination as claimed in claim 1, wherein the axle tube includes an inner periphery having a stepped portion against which the fixing member and the supporting member abuts.

11. (Original) The combination as claimed in claim 1, wherein the axle tube includes an inner periphery having a stepped portion against which the fixing member abuts.

12. (Canceled)

13. (Currently Amended) A combination of a rotor and a supporting structure for the rotor, the combination comprising:

a base provided with a metal axle tube including a thin ring formed on an inner periphery thereof, said thin ring having an axial thickness that is thin relative to an axial length of the holding member to minimize contact between said inner flange and a shaft extending through said hole;

a supporting member securely mounted in the metal axle tube and including as supporting portion;

a fixing member securely mounted in the metal axle tube and including an opening;

a rotor having a permanent magnet, and a the shaft being provided at a center thereof of the rotor, the shaft including an engaging groove, the shaft being extended through the thin ring of the axle tube and the opening of the fixing member with an end face of distal end of the shaft rotatably resting on the supporting portion of the support member and with the fixing member engaging with the engaging groove of the shaft, whereby the shaft and the thin ring have a slight contact therebetween; and

a balance plate mounted to the base and made from magnetically conductive material, the balance plate and the permanent magnet attracting each other to thereby provide an auxiliary balance force for rotation of the shaft on the thin inner flange of the holding member the thin ring of the base.

14. (Original) The combination as claimed in claim 13, wherein the axle tube includes an inner periphery having a stepped portion against which the fixing member abuts.

15. (Original) The combination as claimed in claim 13, wherein the support member includes a closed bottom that forms the supporting portion.

16. (Original) The combination as claimed in claim 13, wherein the supporting portion of the support member includes a hole, further comprising a cover for covering the hole, the end face of the distal end of the shaft rotatably resting on the cover.

17. (Original) The combination as claimed in claim 13, wherein the fixing member includes an annular wall which abuts against the supporting portion of the support member.

18. (Original) The combination as claimed in claim 13, wherein the axle tube includes an inner periphery having a stepped portion against which the fixing member and the supporting member abuts.

REMARKS

Reconsideration of the application is respectfully requested for the following reasons:

1. Amendments to Claims

Claims 1 and 13 have been amended to clarify that the flange and the thin ring are, thin *relative to* the respective axial lengths of the holding member and base. The original claim did not specify what the thinness of the flange and ring were *relative to*, although it was clear from the original description and drawings.

This amendment is clearly supported by Figs. 3-9 of the original disclosure and therefore does not constitute “**new matter**.” In addition, the thinness of the flange and ring were argued as distinguishing features in the previous response, and therefore amendment of the claim to further emphasize these features could not possibly raise “**new issues**.” Entry of the claim amendments is therefore respectfully requested.

2. Rejection of Claims 1, 2, 4, 5, 11, 13, and 14 Under 35 USC §102(b) in view of U.S. Patent No. 6,183,221 (Hsieh)

This rejection is respectfully traversed on the grounds that the admitted prior art and the Hsieh patent fail to disclose or suggest the claimed flange or ring respectively extending from a holding member or base of the stator, and having an axial thickness that is thin relative to the axial thickness of the corresponding holding member or base. In the admitted prior art motor, the inner periphery of the holding member (bearing 93) has no flange or ring, but to the contrary extends the entire width of the holding member, while the contact face of bearing 20 of Hsieh extends over more than half the axial length of the bearing and cannot be considered to be “thin,” particularly in the context of minimizing contact area, as claimed.

It is further noted, however, that the Hsieh patent discloses a relatively thick holding member 20, in contrast to the claimed thin inner flange or thin ring, and that the Hsieh patent does not disclose any structure corresponding to the claimed balance plate for attracting a magnet of the rotor and thereby providing an auxiliary balancing force. While it is admitted that balance plates are known, it is not admitted that balance plates are known *in combination with* the claimed bearing structure, and since the Hsieh patent does not teach such a bearing structure, or combination of a balance plate with such a bearing structure, it is respectfully submitted that the claimed combination could not have been suggested by either the admitted prior art or the Hsieh patent, whether considered individually or in any reasonable combination, and withdrawal of the rejection of claims 1 and 13 under 35 USC §103(a) is respectfully requested.

3. Rejection of Claims 13 and 20 Under 35 USC §103(a) in view of U.S. Patent Nos. 6,183,221 (Hsieh) and 4,922,162 (Shiraki)

This rejection is respectfully traversed on the grounds that neither the Hsieh patent nor the Shiraki patent discloses or suggests the claimed *relatively* thin flange or ring bearing structure, much less such a structure in combination with the claimed balancing plate.

As explained above, the contact area of the bearing structure of Hsieh is relatively thick, while the bearing structure used in the Shiraki motor lacks the claimed holding member or any sort of flange or thin ring.

In addition, it appears that the Examiner has misunderstood the arguments made in the previous response concerning the lack of “symmetry” of the yoke of Shiraki. The argument is simply that, because Shiraki specifically teaches placing a notch 48 in one side of the yoke so that the magnetic force on different sides of the plate are not equal, thereby facilitating starting, then the yoke of Shiraki cannot possibly also serve as a balancing plate.

The Examiner might be able to ignore notch 48 and the basic teachings of Shiraki concerning balancing in order to reject the present claims, but the ordinary artisan would not

have done so, since the ordinary artisan would not have had Applicant's claims as a guide for determining which teachings to rely on and which to ignore. It is possible that the Examiner's version of the Merriam-Webster dictionary uses the word "similar" in one definition of symmetry (out of many), on its face permitting stretching the definition of "symmetry" to encompass a plate with a notch on only one side (it is noted that the undersigned's version of Merriam-Webster's Collegiate Dictionary, Ninth Edition, does not use the word "similar" in any of the definitions). However, it is respectfully submitted that clever, selective manipulation of definitions in this manner does not change the fact that the yoke of Shiraki performs no balancing function, cannot perform a balancing function, and indeed is designed to provide exactly the opposite function, namely an unbalanced starting torque.

Therefore, this rejection is again respectfully traversed on the grounds that plate 44 of Shiraki is not a balancing plate but rather is a stator yoke that cannot have a balancing effect since it is designed to be *asymmetric*, in order to achieve the objective of self-starting. There is simply no reason to use plate 44 in the motor of Hsieh, and therefore no motivation of the combination, unless the stator of Hsieh is reconstructed to resemble the stator of Shiraki, in which case the claimed invention would still not result since the revised plate 44 would still have no balancing function. It is not enough to merely state that the references are from the same field of endeavor. They must still be obviously combinable, or the rejection is improper.

Because the Hsieh and Shiraki patents, whether considered individually or in any reasonable combination, fails to disclose all elements of the invention now recited in independent claims 1 and 13, withdrawal of the rejection under 35 USC §103(a) in view of the Hsieh and Shiraki patents is respectfully requested.

4. Rejection of Claims 1, 2, 4, 5, 11, 13, and 14 Under 35 USC §103(a) in view of U.S. Patent Nos. 6,183,221 (Hsieh) and 4,620,139 (Egami)

This rejection is respectfully traversed on the grounds that the Egami patent, like the Hsieh patent, fails to disclose or suggest the claimed *relatively* thin flange or ring bearing structure, much less such a structure in combination with the claimed balancing plate. Contrary to the statement in the Official Action that “*Egami et al. (Figure 4) use a balance plate for the purpose of reducing noise,*” Egami does not disclose any sort of balance plate, much less use of a balance plate for noise reduction.

Instead, the Egami patent discloses a flat-coil-motor stator yoke 15 similar to that of Shiraki, discussed above. Since the motor of Hsieh already has a stator yoke, and is not a flat coil motor, there is no need to use the stator yoke 15 of Egami in the motor of Hsieh, nor would one of ordinary skill in the art convert the balance plate of Egami into a balance plate since *neither* patent teaches balancing of the type claimed. In addition, it is respectfully noted that the bearing of Egami does not include any sort of flange or thin ring corresponding to the claimed flange or thin ring.

Because the proposed modification of the motor of Hsieh to *add* Egami’s stator yoke makes no sense, the addition of a flat-coil-motor stator yoke to the type of motor disclosed in Hsieh serving no useful purpose and rendering the combined motor inoperative, withdrawal of the rejection of claims 1, 2, 4, 5, 11, 13, and 14 under 35 USC §103(a) is respectfully requested.

In addition, it is respectfully noted that since the old rejections have been maintained, it is clear that this new rejection of the same claims was not necessitated by last amendment, and therefore withdrawal of the finality of the previous Office Action is respectfully requested.

4. Rejection of Claims 3, 6-10, and 15-18 Under 35 USC §103(a) in view of U.S. Patent Nos. 6,183,221 (Hsieh), 4,620,139 (Egami), and 5,942,823 (Higuchi)

This rejection is respectfully traversed on the grounds that the Higuchi patent, like the Hsieh and Egami patents, fails to disclose or suggest the claimed *relatively* thin flange or ring bearing structure, much less such a structure in combination with the claimed balancing plate. As explained above, Hsieh and Egami fail to disclose either the claimed bearing structure or a balance plate corresponding even remotely to the claimed balance plate, the alleged “balance plate” of Egami being merely the stator yoke of a flat-coil motor. The Higuchi patent is directed to a motor with a lateral pressure mechanism that appears to be designed to *eliminate* the need for a balancing plate, rather than suggesting such a plate, and that appears to require a large contact area bearing 40 rather than the claimed flange or thin ring. Because the Hsieh, Egami, and Higuchi patents all fail to disclose or suggest the claimed combination of bearing holder with flange or thin ring, and a balancing plate, withdrawal of the rejection of claims 3, 6-10, and 15-18 under 35 USC §103(a) is respectfully requested.

Having thus overcome each of the rejections made in the Official Action, withdrawal of the rejections and expedited passage of the application to issue is requested.

Respectfully submitted,

BACON & THOMAS, PLLC



Date: August 11, 2003

By: BENJAMIN E. URCIA
Registration No. 33,805

BACON & THOMAS, PLLC
625 Slaters Lane, 4th Floor
Alexandria, Virginia 22314
Telephone: (703) 683-0500